What is claimed is:

1. A recombinant virus of the *Paramyxoviridae* family comprising a nonparamyxoviral envelope protein capable of mediating entry of said recombinant virus into a mammalian cell.

2. The recombinant virus according to claim 1, wherein the recombinant virus is a recombinant respiratory syncytial virus, and the nonparamyxoviral envelope protein comprises an ectodomain of a baculovirus envelope GP64 protein.

3. The recombinant virus according to claim 2, wherein the nonparamyxoviral envelope protein comprises (1) an ectodomain and a transmembrane domain of the baculovirus GP64 protein and a C-terminal sequence of a respiratory syncytial virus fusion protein F, or (2) the baculovirus GP64 protein.

4. A recombinant virus as in claim 2 or 3, wherein the baculovirus GP64 protein is an AcMNPV GP64 protein.

5. A pharmaceutical composition comprising a therapeutically effective amount of a recombinant virus as in any one of the preceding claims, wherein said pharmaceutical composition has been stored at above 0°C for at least 3.5 days.

6. A pharmaceutical composition comprising a therapeutically effective amount of a recombinant virus as in one of claims 1-4, wherein said pharmaceutical composition has been stored at room temperature for at least 3.5 days.

7. A pharmaceutical composition comprising a therapeutically effective amount of a recombinant virus as in one of claims 1-4, wherein said pharmaceutical composition has been stored at above 0°C for at least one week.

8. A pharmaceutical composition comprising a therapeutically effective amount of a recombinant virus as in one of claims 1-4, wherein said pharmaceutical composition has been stored at room temperature for at least one week.

9. A composition comprising a recombinant virus as in one of claims 1-4, wherein the composition has been stored under storage conditions for at least 3.5 days, wherein infectivity of

said recombinant virus at the end of said at least 3.5 days is at least 60% of that at the beginning of said at least 3.5 days, and wherein said storage conditions are such that the average infectivity of wild-type human respiratory syncytial virus A2 strain is reduced by more than 40% after said at least 3.5 days under said storage conditions.

10. A composition comprising a recombinant virus as in one of claims 1-4, wherein the composition has been stored under storage conditions for at least one week, wherein infectivity of said recombinant virus at the end of said at least one week is at least 60% of that at the beginning of said at least one week, and wherein said storage conditions are such that the average infectivity of wild-type human respiratory syncytial virus A2 strain is reduced by more than 50% after said at least one week under said storage conditions.

11. A composition comprising a recombinant virus as in one of claims 1-4, wherein the composition has been stored under storage conditions for at least two weeks, and infectivity of said recombinant virus at the end of said at least two weeks is at least 60% of that at the beginning of said at least two weeks, and wherein said storage conditions are such that the average infectivity of wild-type human respiratory syncytial virus A2 strain is reduced by more than 80% after said at least two weeks under said storage conditions.

12. A composition as in one of claims 9-11, wherein said storage conditions include maintaining storage temperature or temperatures at above 0°C cumulatively for at least two weeks.

13. A composition as in one of claims 9-11, wherein said storage conditions include maintaining storage temperature or temperatures at room temperature cumulatively for at least two weeks.

14. A recombinant virus as in one of claims 1-4, wherein said recombinant virus comprises or encodes one or more immunogenic epitopes of a mammal pathogen.

15. A vaccine formulation comprising the recombinant virus of claim 14, wherein the vaccine formulation is capable of eliciting an immune response against the pathogen or a component thereof in a mammal.

16. Use of the recombinant virus of claim 14 for the manufacture of a medication for eliciting said immune response in a mammal of interest..

17. A recombinant virus as in one of claims 1-4, comprising or encoding immunogenic epitopes of two or more different mammal pathogens, each of said human pathogens capable of causing a different respective mammal disease or medical syndrome.

18. A recombinant virus as in one of claims 1-4, 14 and 17, wherein said recombinant virus is capable of infecting a cell in a mammal but cannot transmit from said cell to another cell in the mammal.

19. A recombinant virus as in one of claims 1-4, 14 and 17-18, wherein said recombinant virus does not include any functional respiratory syncytial virus fusion protein F that can mediate entry of said recombinant virus into the mammalian cell.

20. A recombinant virus as in one of claims 1-4, 14 and 17-18, wherein said recombinant virus comprises a recombinant respiratory syncytial virus fusion protein F which includes a heterologous cytoplasmic tail or transmembrane domain.

21. A recombinant virus as in one of claims 1-4, 14 and 17-18, wherein said recombinant virus comprises a recombinant respiratory syncytial virus fusion protein F which lacks a homologous cytoplasmic tail or transmembrane domain.

22. A method comprising:

contacting a biological sample with the recombinant virus of claim 14 which comprises said one or more epitopes; and

detecting the presence or absence of a molecule or an antibody in said biological sample, wherein said molecule or antibody is capable of binding to said one or more epitopes.

23. A polynucleotide encoding each and every protein component of a recombinant virus as in one of claims 1-4, 14 and 17-21.

24. A mammalian cell comprising:

a recombinant virus as in one of claims 1-4, 14 and 17-21; or

one or more polynucleotides that encode each and every protein component of said virus.

25. A non-human mammal comprising the mammalian cell of claim 24.

26. A therapeutic vector comprising or encoding a recombinant virus as in one of claims 1-4, 14 and 17-21.

27. An enveloped recombinant vertebrate virus comprising a heterologous envelope protein, wherein said envelope protein is capable of mediating entry of the recombinant virus into a mammalian cell, wherein the recombinant virus has been stored under storage conditions for at least 3.5 days, wherein infectivity of the recombinant virus at the end of said at least 3.5 days is at least 60% of that at the beginning of said at least 3.5 days, and wherein said storage conditions are such that the average infectivity of a wild-type virus of the same species as the recombinant virus is reduced by more than 40% after said at least 3.5 days under said storage conditions.

28. The recombinant virus according to claim 27, wherein said storage conditions include maintaining storage temperature or temperatures at above 0°C cumulatively for at least 3.5 days.

29. The recombinant virus according to claim 27, wherein said storage conditions include maintaining storage temperature or temperatures at room temperature cumulatively for at least 3.5 days.

30. A recombinant virus as in one of claims 27-29, wherein said envelope protein includes an ectodomain of a baculovirus transmembrane protein, and said recombinant virus is a recombinant respiratory syncytial virus, and wherein said wild-type virus is wild-type human respiratory syncytial virus A2 strain.

31. A recombinant virus as in one of claims 27-30, wherein the recombinant virus has been stored under said storage conditions for at least two weeks, wherein infectivity of the recombinant virus at the end of said at least two weeks is at least 60% of that at the beginning of said at least two weeks, and wherein said storage conditions are such that the average infectivity of a wild-type virus of the same species as the recombinant virus is reduced by more than 80% after said at least two weeks under said storage conditions.

32. An enveloped recombinant vertebrate virus comprising a heterologous envelope protein, wherein said envelope protein includes an ectodomain of a baculovirus transmembrane protein and is capable of mediating entry of the recombinant virus into a mammalian cell, and wherein the recombinant virus is not a lentivirus.

33. The recombinant virus according to claim 32, wherein the recombinant virus is prepared by culturing mammalian cells infected with the recombinant virus at about 33°C and then recovering the recombinant virus from said cells.

34. The recombinant virus according to claim 32, wherein the recombinant virus has improved infectivity to the mammalian cell at 33°C as compared to at 37°C.

35. A mammalian cell comprising:

an expression cassette encoding an envelope protein comprising an ectodomain of a baculovirus transmembrane protein; and

one or more expression vectors comprising or encoding the genome of an infection-defective or infection-attenuated mammalian virus, wherein said mammalian virus after being assembled in said mammalian cell comprises said envelope protein which provides the assembled virus with improved infectivity.

36. The mammalian cell of claim 35, wherein said mammalian virus is a recombinant respiratory syncytial virus, and said envelope protein comprises an ectodomain of a baculovirus envelope GP64 protein.

37. The mammalian cell of claim 36, wherein said recombinant respiratory syncytial virus lacks one or more endogenous RSV transmembrane proteins.

38. The mammalian cell of claim 37, wherein each of said one or more endogenous RSV transmembrane proteins is selected from the group consisting of SH protein, G protein, and F protein.

39. A mammalian cell as in one of claims 36-38, wherein said recombinant respiratory syncytial virus comprises a recombinant respiratory syncytial virus fusion protein F which includes a heterologous cytoplasmic tail or transmembrane domain.

40. A mammalian cell as in one of claims 36-38, wherein said recombinant respiratory syncytial virus comprises a recombinant respiratory syncytial virus fusion protein F which includes a heterologous cytoplasmic tail, a heterologous transmembrane domain, and an ectodomain comprising a N-terminal homologous sequence and a C-terminal heterologous sequence.

41. A mammalian cell as in one of claims 36-38, wherein said recombinant respiratory syncytial virus comprises a recombinant respiratory syncytial virus fusion protein F lacking a homologous cytoplasmic tail or transmembrane domain.

42. A mammalian cell as in one of claims 36-38, wherein said expression cassette is stably integrated into a chromosome of said mammalian cell.

43. The mammalian cell of claim 42, wherein said cell is Vero cell.

44. A mammalian cell comprising a stably-introduced expression cassette which encodes an envelope protein comprising an ectodomain of a baculovirus transmembrane protein.

45. The mammalian cell of claim 44, wherein said baculovirus transmembrane protein is baculovirus envelope GP64 protein.

46. A mammalian cell as in one of claims 44 and 45, wherein said mammalian cell is Vero cell, and said expression cassette is integrated into a chromosome of said Vero cell.

47. A recombinant respiratory syncytial virus comprising a heterologous envelope protein which includes at least one immunogenic epitope of respiratory syncytial virus fusion protein F.

48. The recombinant virus of claim 47, wherein said heterologous envelope protein comprises a fusion protein F which lacks a homologous cytoplasmic tail or transmembrane domain.

49. The recombinant virus of claim 47, wherein said heterologous envelope protein comprises a fusion protein F which includes a heterologous cytoplasmic tail, a heterologous transmembrane domain, and an ectodomain comprising a N-terminal homologous sequence and a C-terminal heterologous sequence.

50. A recombinant virus as in one of claims 47-49, wherein said heterologous envelope protein comprises a fusion protein F ectodomain, or a variant thereof, and wherein said heterologous envelope protein lacks fusion capability, or has an attenuated fusion capability compared to a wild-type naturally-occurring fusion protein F.

51. A recombinant virus as in one of claims 47-50, wherein said virus comprises an envelope protein which includes an ectodomain of an envelope GP64 protein of a member of the family Baculoviridae.

52. A pharmaceutical composition comprising a therapeutically effective amount of a recombinant virus as in one of claims 1-4, wherein said pharmaceutical composition has been stored at about 37^0C for at least 3.5 days.

53. A pharmaceutical composition comprising a therapeutically effective amount of a recombinant virus as in one of claims 1-4, wherein said pharmaceutical composition has been stored at about 37^0C for at least one week.

54. The recombinant virus according to claim 27, wherein said storage conditions include maintaining storage temperature or temperatures at about 37^0C cumulatively for at least 3.5 days.

55. The recombinant virus according to claim 27, wherein said storage conditions include maintaining storage temperature or temperatures at about 37^0C cumulatively for at least one week.